

IN THE SPECIFICATION:

Please replace the paragraph beginning on line 28 on page 1 with the following paragraph:

Figs. 3-8 are diagrams illustrating various stages of a process for manufacturing a PCB in accordance with one embodiment of the present invention; [[and]]

Please replace the paragraph beginning on line 30 on page 1 with the following paragraph:

Fig. 9 is a sectional side view illustrating a multi-layer PCB utilizing carbon-based cladding to implement a pull-down resistor in accordance with one embodiment of the present invention[.]; and

Please add the following new paragraph after the paragraph ending on line 32 on page 1:

Fig. 10 is a sectional side view illustrating a PCB in accordance with one embodiment of the present invention.

Please replace the paragraph beginning on line 17 on page 5 with the following paragraph:

After the metallization pattern 30 has been formed, the resulting metallic structures (e.g., signal lines, contact pads, etc.) are cleaned and another layer of

carbon-based cladding 32 is applied to the top and side portions of the structures , as shown in **Fig. 7**. Typically, the same carbon deposition process will be used to apply this cladding layer that was used previously to cover the dielectric board member 24. After the second layer of cladding 32 has been applied, further processing and shaping of the carbon-based cladding material may be undertaken. In one embodiment, as shown in **Fig. 8**, all cladding material is removed from the regions 34 between adjacent signal lines to increase the impedance between the signal lines. Other portions of the cladding material may also be removed at this point. The cladding material can be removed using any plurality of different methods including, for example, photolithography techniques. In one approach, a photolithography mask is used that is patterned to cover the sidewalls of the conductive structures with photoresist to ensure that the cladding on the side portions of the signal lines remains in tact during the subsequent etch phase. In an alternative embodiment, the carbon-based cladding material is not removed from the regions 34 between adjacent signal lines, such as an embodiment illustrated in **Fig. 10**. By leaving the inter-signal cladding in tact, a lower impedance is achieved between the signal lines. Typically, the decision on whether to remove or maintain the inter-signal cladding will be made during the PCB design phase based on the desire characteristic impedance and inter-line spacing of the signal lines of the PCB. The thickness of the inter-signal cladding layer may also be used as a tuning mechanism to tune the impedance of the lines during the manufacturing process.